IN THE DRAWINGS:

The attached replacement sheets, which includes Figures 1A, 1B, 6, 10 and 14, replaces the original sheets of Figures 1, 6, 10 and 14.

REMARKS

In the Office Action, the drawings were objected to under 37 CFR §1.83(a). Claims 17-29 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 17-28 were rejected under 35 U.S.C. §102(b) as being anticipated by Suzuki (JP 61-129489) and Ohman (WO 98/27340). Claim 29 was rejected under 35 U.S.C. §103(a) as being unpatentable over either Suzuki or Ohman in view of Praeg (U.S. Pat. No. 2,541,283).

In response to the objections against the drawings, the applicant hereby encloses amended drawing sheets. The amendments to the drawings consist of the following corrections:

i) Corrected Figure 1 is now separated in two parts, the figure at the top is "Figure 1A," and the figure at the bottom is "Figure 1B."

ii) Corrected Figure 6 now includes reference numbers 90 (representing the helical generating line with the diameter larger than the pitch diameter), 91 (represents several points of the surface generated by line 90), 92 (represents several points of a helical generating line with a diameter shorter than the pitch diameter) and 93 (represents a section of the curved generating solid helical profile.

iii) Figure 10 now includes reference number 89 (representing the line of centers).

iv) Figure 14 now includes reference numbers 92 and 93.

Additionally, to simplify understanding, applicant encloses a table summarizing the reference numbers indicated in the figures and their meaning. Please note that amendments to the Specification have been made in order to support the modifications to the figures.

The Examiner considers that Claims 17 to 29 are indefinite since "counternovolute" and "novolute" are unclear words.

In an effort to traverse this objection, Applicant respectfully submits that the Specification clearly defines the terms "novolute" and "counternovolute." Applicant understands that where conventional terms are insufficient to describe new elements, Applicant, as its own lexicographer, may resort to the creation and definition of novel elements. In this case, "novolute" and "counternovolute" attempt to best describe the two novel claimed gear profiles has been made by adopting and modifying the term "involute" which refers to a classical method of generating profiles. This method involves "unrolling" a particular circular profile on a plane of rotation. The resulting geometry is called an involute. As the generating action in the claimed profile may use profiles that are not circular (and

preferably it is not circular), the Applicant has termed the new profile "novolute". As to the "counternovolute," the Applicant adopted this term since it represents the profile of the pinion's body that having as much material as possible, does not interfere with the novolute surface of the wheel.

The Examiner considers that Claims 17 to 28 are anticipated by Suzuki (JP 61-129489) and separately anticipated by Öhman (WO98/27340).

In order to raise a proper novelty bar, the cited prior art must individually disclose sufficient information to permit a skilled artisan to reproduce the invention. In the case at hand, Suzuki and Öhman do not even provide the basis for generating the claimed gear profiles. Suzuki and Öhman claim classical parallel axes screw profiles wherein the contact between two gears occurs in the plane of action. Further, the contacting surfaces are always perpendicular to the plane of contact, so the dominant contact forces are always parallel to the plane.

Suzuki's invention provides two parallel axes screws that are rotatably held in a rotor housing for preventing fluid from leaking. The tooth tip of male and female parts mesh together, and the fluid or gas contained between them is conveyed and compressed when the rotors are operated; the specific geometric design of the tooth profile prevents the fluid from leaking. However, it could be seen that male and female parts are not designed to provide a high load carrying

capacity. Instead, these parts are designed to improve the compression of the fluid (which is provided by the rotors). It can be understood by a person versed in the art that rotors designed to compress fluids or gases are not intended to work under high contact pressure conditions. Moreover, as can be easily seen from Figure 3, the male and female elements are torqued by a power gear (k); hence the power action is performed by the power gear (k) and not by the parts.

Öhman's invention provides a solution similar to Suzuki's screw rotors. As with Suzuki, Öhman does not seek to provide a high load carrying capacity. Öhman's rotors design pretends to size the rotors depending on the type of gas or fluid to be conveyed or compressed. To the contrary, the size of the rotors of the present invention depends on the power to be transmitted. The purpose of Öhman's invention is to seal the fluid or gas between the parts and compress it. One can conclude that the contact between the two rotors are achieved by the presence of the fluid and not by the stress generated by the direct contact between the parts. Another difference is that Öhman does not seek to provide the maximum width contact between the parts which take place in the transverse plane. This does not allow covering a wider angle of contact between the parts, which prevents them from providing a high load carrying capacity.

The Examiner considers that Claim 29 is unpatentable over either Suzuki (JP 61-129489) or Öhman (WO98/27340) in view of Praeg (USP 2.541.283). Claim 29 has been cancelled, rendering the objection moot.

Contrary to the documents cited by the Examiner, the present invention seeks to generate the maximum width curvature of the non-involute contact surfaces that enable the gears to increase the load carrying capacity, building much smaller parts. The lateral surface of the generated part touches the helical line of the generator along the longest possible length (from the line of centers to the outer edge of the thread). Each non-involute curve defines a small segment of the non-involute curve where said curve has a longer axial progress over others. This geometry allows the gear transmission to incorporate the best conjugated engagement. In conclusion, none of the prior art document suggest any geometrical element that could affect the novelty or the inventive step of the present invention.

Based on the foregoing amendments and remarks, it is respectfully submitted that the present application should now be in condition for allowance. A Notice of Allowance is in order, and such favorable action and reconsideration are respectfully requested.

However, if after reviewing the above amendments and remarks, the Examiner has any questions or comments, he is cordially invited to contact the undersigned attorneys.

Respectfully submitted,

JACOBSON HOLMAN PLLC

By: _____
John C. Holman
Reg. No. 22,769

400 Seventh Street, N.W.
Washington, D.C. 20004-2201
(202) 638-6666
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JCH/JLS:ms